4/6/05 DRAFT

Fire Regime Condition Class (FRCC) Interagency Handbook Reference Conditions

Modeler: Doug Havlina Date: 4/6/05 PNVG Code: JUPI1

Potential Natural Vegetation Group: Juniper-Pinyon (Frequent Fire Type)

Geographic Area: Columbia Plateau, Central Rockies, Great Basin, Colorado Plateau, Southwest Desert, Southern Rockies.

Description: PNVG is widespread across Nevada, Utah, Colorado, New Mexico, and Arizona. Sites range from gently rolling uplands to moderately and very steep slopes. Juniper-Pinyon types occupy dry foothills, plateaus, mesas, and mountain slopes. Soils range from shallow to moderately deep; climate is semi-arid. This type occupies a band above desert shrub/grasslands and below montane forests. This woodland PVT is generally dominated by Colorado or singleleaf pinyon pine and Utah juniper, but also includes Rocky Mountain and one-seed juniper. Understory associates include manzanita spp., sagebrush spp., gambel oak, and a mixture of cool and warm season grasses.

Fire Regime Description: Fire Regimes I and IV; ranging from short- to moderately long interval (e.g., 30-100 yr) mixed severity- and stand replacement fires.

Vegetation Type and Structure

Class	Percent of	Description	
	Landscape	•	
A: post	20	Post-fire community of forbs and perennial	
replacement		grasses	
B: mid-	10	Mid-development, dense (>40% cover) juniper-	
development		pinyon woodland; understory being lost	
closed			
C: mid- open	20	Mid-development, open (<40% cover) juniper-	
		pinyon stand with mixed shrub/herbaceous	
		community in understory	
D: late- open	40	Late-development, open juniper-pinyon stand	
		with "savannah-like" appearance; mixed	
		shrub/herbaceous community	
E: late- closed	10	Late-development, closed juniper-pinyon	
		forest. May be multi-storied. Substantial	
		mortality within stand; depauperate	

Total

100

Fire Frequency and Severity				
Fire Frequency-	Modeled	Pct, All	Description	
Severity	Probability	Fires		
Replacement Fire	.0133	12	Crown fire in dense stands in stages	
			B and E	
Non-Replacement	.019	88	Surface and mosaic fire causing	
Fire			single tree and small group mortality	
			in stages B, C, and D	
All Fire Frequency*	.0323	100		

^{*}Sum of replacement fire and non-replacement fire probabilities.

References

Alexander, Robert R.; Ronco, Frank, Jr. 1987. Classification of the forest vegetation on the National Forests of Arizona and New Mexico. Res. Note RM-469. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 10 p.

Anderson, Hal E. 1982. Aids to Determining Fuel Models For Estimating Fire Behavior. Gen. Tech. Rep. INT-122. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 22 p.

Arno, Stephen F. 2000. Fire in western forest ecosystems. In: Brown, James K.; Kapler-Smith, Jane, eds. Wildland fire in ecosystems: Effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station: 97-120.

Bradley, Anne F., Noste, Nonan V., and Fischer, William C. 1992. Fire Ecology of Forests and Woodlands in Utah. Gen. Tech. Rep. GTR- INT-287. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 127 p.

Brown, James K.; Smith, Jane Kapler, eds. 2000. Wildland fire in ecosystems: effects of fire on flora. Gen. Tech. Rep. RMRS-GTR-42-vol. 2. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 257 p.

Erdman, James A. 1970. Pinyon-juniper succession after natural fires on residual soils of Mesa Verde, Colorado. Science Bulletin, Biological Series - Volume XI, No. 2. Brigham Young University, Provo, UT. 26 p.

Everett, Richard L., and Ward, Kenneth. 1984. Early Plant Succession on Pinyon-Juniper Controlled Burns. Northwest Science, Vol. 58, No. 1. p. 57-68.

Eyre, F. H., ed. 1980. Forest cover types of the United States and Canada. Washington, DC: Society of American Foresters. 148 p.

Goodrich, Sherel, and Barber, Brian. 1999. Return Interval for Pinyon-Juniper Following Fire in the Green River Corridor, Near Dutch John, Utah. In: USDA Forest Service Proceedings RMRS-P-9.

Gruell, George E. Historical and Modern Roles of Fire in Pinyon-Juniper. In: Proceedings, USDA Forest Service RMRS-P-9. p. 24-28.

Gruell, George E., Eddleman, Lee E., and Jaindl, Ray. 1994. Fire History of the Pinyon-Juniper Woodlands of Great Basin National Park. Technical Report NPS/PNROSU/NRTR-94/01. U.S. Department of Interior, National Park Service, Pacific Northwest Region. 27 p.

Hardy, Colin C., Kirsten M. Schmidt, James P. Menakis, R. Neil Samson. 2001. Spatial data for national fire planning and fuel management. Int. J. Wildland Fire. 10(3&4): 353-372.

Hessburg, P.F., Smith, B.G., Salter, R.B., Ottmar, R.D., and Alvarado, E. 2000. Recent changes (1930s-1990s) in spatial patterns of interior northwest forests, USA. Forest Ecology and Management 136 (2000) 53-83.

Kilgore, B.M. 1981. Fire in ecosystem distribution and structure: western forests and scrublands. p. 58-89. In: H.A. Mooney et al. (Technical Coordinators). Proceedings: Conference on Fire Regimes and Ecosystem Properties, Honolulu, 1978. Gen. Tech. Rep. WO-GTR-26.

Kuchler, A.W. 1964. Potential Natural Vegetation of the Conterminous United States. American Geographic Society Special Publication No. 36. 116 p.

Ogle, Karen, and DuMond, Valerie. 1997. Historical Vegetation on National Forest Lands in the Intermountain Region. U.S. Department of Agriculture, Forest Service, Intermountain Region, Ogden, UT. 129 p.

Ott, Jeffrey, E., McArthur, E. Durant, and Sanderson, Stewart C. 2001. Plant Community Dynamics of Burned and Unburned Sagebrush and Pinyon-Juniper Vegetation in West-Central Utah. In: Proceedings, USDA Forest Service RMRS-P-9. p. 177-190.

Romme, William H., Floyd-Hanna, Lisa, and Hanna, David D. 2002. Ancient Pinyon-Juniper forests of Mesa Verde and the West: A cautionary note for forest restoration programs. In: Conference Proceedings – Fire, Fuel Treatments, and

Ecological Restoration: Proper Place, Appropriate Time, Fort Collins, CO, April 2002. 19 p.

Schmidt, Kirsten M, Menakis, James P., Hardy, Colin C., Hann, Wendel J., Bunnell, David L. 2002. Development of coarse-scale spatial data for wildland fire and fuel management. Gen. Tech. Rep. RMRS-GTR-87. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 41 p. + CD.

Soule', Peter T., and Knapp, Paul A. 1999. Western juniper expansion on adjacent disturbed and near-relict sites. J. Range Manage. 52:525-533. September 1999.

Soule' Peter T., and Knapp, Paul A. 2000. *Juniperus occidentalis* (western juniper) establishment history on two minimally disturbed research natural areas in central Oregon. Western North American Naturalist (60)1, p. 26-33.

Stein, Steven J. 1988. Fire History of the Paunsaugunt Plateau in Southern Utah. Great Basin Naturalist. Vol. 48, No. 1. p. 58-63.

Tausch, Robin J., and West, Neil E. 1987. Differential Establishment of Pinyon and Juniper Following Fire. The American Midland Naturalist 119(1). p. 174-184.

U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, December). Fire Effects Information System, [Online]. Available: http://www.fs.fed.us/database/feis/ [Accessed: 2/1/03].

Ward, Kenneth V. 1977. Two-Year Vegetation Response and Successional Trends for Spring Burns in the Pinyon-Juniper Woodland. M.S. Thesis, University of Nevada, Reno. 54 p.

Wright, Henry A., Neuenschwander, Leon F., and Britton, Carlton M. 1979. The role and use of fire in Sagebrush-Grass and Pinyon-Juniper Plant Communities. Gen. Tech. Rep. INT-GTR-58. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 48 p.

Young, James A., and Evans, Raymond A. 1981. Demography and Fire History of a Western Juniper Stand. J. Range Manage. 34:501-505. November 1981.

Young, James A., and Evans, Raymond A. 1978. Population Dynamics after Wildfires in Sagebrush Grasslands. J. Range Manage. 31:283-289. July 1978.

MODELER FIELD REVIEWS

Havlina, Doug. Ely, NV Field Office; Cedar City, UT Field Office, BLM. 2002.

VDDT RESULTS







